Draft decision

Roma to Brisbane Pipeline Access Arrangement 2022 to 2027

Attachment 4 Regulatory depreciation

November 2021

AUSTRALIAN ENERGY REGULATOR

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Note

This attachment forms part of the AER's draft decision on the access arrangement that will apply to APT Petroleum Pipelines Pty Limited (APTPPL)'s Roma to Brisbane Pipeline for the 2022–2027 access arrangement period. It should be read with all other parts of the draft decision.

The draft decision includes the following documents:

Overview

Attachment 1 – Services covered by the access arrangement

Attachment 2 – Capital base

Attachment 3 – Rate of return

Attachment 4 – Regulatory depreciation

Attachment 5 – Capital expenditure

Attachment 6 – Operating expenditure

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4 Regulatory depreciation

Depreciation is a method used in our determination to allocate the cost of an asset over its useful life. It is the amount provided so capital investors recover their investment over the economic life of the asset (otherwise referred to as 'return of capital'). When determining the total revenue for the Roma to Brisbane Pipeline (RBP), we include an amount for the depreciation of the projected capital base.[1] Under the building block framework, regulatory depreciation consists of the net total of the straight-line depreciation less the indexation of the capital base.

This attachment outlines our draft decision on APTPPL's annual regulatory depreciation amount for the RBP for the 2022–27 access arrangement period (2022–27 period). Our consideration of specific matters that affect the estimate of regulatory depreciation is also outlined in this attachment. These include:

- the standard asset lives for depreciating new assets associated with forecast capital expenditure (capex), including the proposed shortening of standard asset lives for some asset classes[2]
- the remaining asset lives for depreciating existing assets in the opening capital base, including for some pipeline assets, the proposed shortening of a remaining asset life and merging of two asset classes.[3]

4.1 Draft decision

We determine a regulatory depreciation amount of $16.2 million ($nominal) for APTPPL for the 2022–27 period. This represents a reduction of $6.1 million (27.3 per cent) from APTPPL's proposed regulatory depreciation amount of $22.3 million ($nominal).[4] The key reason for the decrease compared to APTPPL's proposal is our higher expected inflation rate for the 2022–27 period.

Table 4.1 sets out our draft decision on APTPPL's regulatory depreciation amount for the RBP over the 2022–27 period.

1 NGR, r. 76(b).

2 The term 'standard asset life' may also be referred to as 'standard economic life', 'asset life', 'economic asset life' or 'economic life'.

3 The term 'remaining asset life' may also be referred to as 'remaining economic life' or 'remaining life'.

4 APTPPL, *Roma to Brisbane Pipeline 2022–27 – Updated Post-tax revenue model,* 30 September 2021.

Table 4.1 AER's draft decision on APTPPL's RBP forecast depreciation for the 2022–27 period ($million, nominal)

	2022–23	2023–24	2024–25	2025–26	2026–27	Total
Straight-line depreciation	13.7	15.0	15.7	16.3	12.7	73.4
Less: indexation on opening capital base	11.2	11.5	11.5	11.5	11.4	57.2
Regulatory depreciation	**2.5**	**3.5**	**4.2**	**4.8**	**1.2**	**16.2**

Source: AER analysis.

The regulatory depreciation amount is the net total of the straight-line depreciation less the inflation indexation of the capital base. The straight-line depreciation is impacted by our decision on APTPPL's RBP opening capital base as at 1 July 2022 (Attachment 2), forecast capex (Attachment 5) and asset lives (section 4.4). Our draft decision straight-line depreciation for APTPPL is $0.5 million ($ nominal) higher than that proposed by APTPPL.

The indexation on the capital base is impacted by our decision on APTPPL's RBP opening capital base (Attachment 2), forecast capex (Attachment 5) and the expected inflation rate (Attachment 3).[5] Our draft decision indexation on APTPPL's projected RBP capital base is $6.6 million higher than proposed by ATPPPL. This is largely because of our higher expected inflation rate of 2.25 per cent per annum for the 2022–27 period compared to 2.00 per cent per annum as proposed by APTPPL.[6] The increase in indexation has more than offset the increase in straight-line depreciation (since indexation is deducted from the straight-line depreciation).

In coming to this decision on APTPPL's straight-line depreciation:

- We accept APTPPL's proposed straight-line depreciation method used to calculate the regulatory depreciation amount.
- We accept APTPPL's proposed weighted average method to calculate the remaining asset lives as at 1 July 2022 for depreciating its existing assets. This method is a continuation of the approved approach used in the 2017–22 access arrangement and applies the approach as set out in our roll forward model (RFM). In accepting the weighted average method, we have updated the proposed remaining asset lives as at 1 July 2022 due to the input changes we made to APTPPL's proposed RFM. These input changes are discussed in section 4.4.1.
- We accept APTPPL's proposed accelerated depreciation approach to reduce the remaining asset life for the 'Original pipeline' asset class (i.e. the DN250 pipeline)

[5] Capex enters the capital base net of forecast disposals (and capital contributions where relevant). It includes equity raising costs (where relevant) and the half-year WACC to account for the timing assumptions in the AER's PTRM. Our draft decision on the capital base (Attachment 2) also reflects our updates to the WACC for the 2022–27 period.

[6] Our estimate of inflation will be updated for our final decision.

to 2 years and merge this asset class with the 'Pipelines' asset class. This is discussed in section 4.4.1.

- We accept APTPPL's proposed accelerated depreciation approach to reduce the standard asset lives for the 'Pipelines' and 'Compressors' asset classes by setting them equal to the respective remaining asset lives. However, we do not accept this same proposed approach for the 'Regulation and meters' asset class as it has no capex forecast and so we do not assign it a standard asset life. We accept APTPPL's proposal to adopt the same standard asset lives for its other asset classes, consistent with those approved for the 2017–22 period. This is discussed in section 4.4.2.

4.2 APTPPL's proposal

APTPPL proposed a total forecast regulatory depreciation amount of $22.3 million ($nominal) for the RBP for the 2022–27 period, as set out in Table 4.2.

Table 4.2 APTPPL's proposed forecast depreciation amount for the RBP for the 2022–27 period ($million, nominal)

	2022–23	2023–24	2024–25	2025–26	2026–27	Total
Straight-line depreciation	13.7	14.9	15.6	16.2	12.5	72.9
Less: indexation on opening capital base	10.0	10.2	10.2	10.1	10.1	50.6
Regulatory depreciation	**3.7**	**4.7**	**5.4**	**6.0**	**2.4**	**22.3**

Source: APTPPL, *Roma to Brisbane Pipeline 2022–27 – Updated Post-tax revenue model,* 30 September 2021.

To calculate the depreciation amount, APTPPL proposed to use:[7]

- the straight-line depreciation method employed in the AER's post-tax revenue model (PTRM)
- the closing capital base value as at 30 June 2022 derived from the AER's RFM
- proposed forecast capex for the 2022–27 period
- an expected inflation rate of 2.00 per cent per annum for the 2022–27 period
- standard asset lives for depreciating new assets associated with forecast capex for the 2022–27 period, which are mostly consistent with those approved in the 2017–22 access arrangement. However, APTPPL proposed accelerated depreciation by reducing the standard asset lives for 'Pipelines', 'Compressors' and 'Regulation and meters' asset classes to equal their respective remaining asset lives.

[7] APTPPL, *Roma to Brisbane Pipeline 2022–27, Attachment 3 – Post-tax revenue model*, July 2021. APTPPL, *Roma to Brisbane Pipeline 2022–27 – Reset RIN response Schedule 2*, July 2021, p. 52.

- the weighted average approach to determine remaining asset lives at 1 July 2022 derived from the RFM to calculate the forecast depreciation of existing assets.

In addition, APTPPL proposed accelerated depreciation by reducing the remaining asset life of the 'Original pipeline' asset class (DN250 pipeline) to 2 years and merging this asset class with the 'Pipelines' asset class.

4.3 Assessment approach

In the RBP 2022–27 access arrangement proposal, APTPPL must provide a forecast depreciation schedule for the 2022–27 period. The depreciation schedule sets out the basis on which the pipeline assets constituting the capital base are to be depreciated for the purpose of determining a reference tariff.[8] It may consist of a number of separate schedules, each relating to a particular asset or class of asset.[9]

In making a decision on the proposed depreciation schedule, we assess the compliance of the proposed depreciation schedule with the depreciation criteria set out in the National Gas Rules (NGR). The depreciation criteria[10] state that the depreciation schedule should be designed:

- so that reference tariffs will vary, over time, in a way that promotes efficient growth in the market for reference services;[11]
- so that each asset or group of assets is depreciated over the economic life of that asset or group of assets;[12]
- so as to allow, as far as reasonably practicable, for adjustment reflecting changes in the expected economic life of a particular asset, or a particular group of assets;[13]
- so that (subject to the rules about capital redundancy), an asset is depreciated only once;[14] and
- so as to allow for the service provider's reasonable needs for cash flow to meet financing, non-capital and other costs.[15]

The depreciation criteria also provides that a substantial amount of depreciation may be deferred in circumstances where investment is made on the expectation of future demand growth.[16]

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8 NGR, r. 88(1).
9 NGR, r. 88(2).
10 NGR, r. 89.
11 NGR, r. 89(1)(a).
12 NGR, r. 89(1)(b).
13 NGR, r. 89(1)(c).
14 NGR, r. 89(1)(d).
15 NGR, r. 89(1)(e).
16 NGR, r. 89(2).

The NGR require that any forecast must be arrived at on a reasonable basis and must represent the best forecast or estimate possible in the circumstances.[17]

Our assessment takes into account revenue and pricing principles (RPP) and seeks to promote the National Gas Objective (NGO).[18] The NGO is to promote efficient investment in, and efficient operation and use of, natural gas services for the long term interests of consumers of natural gas with respect to price, quality, safety, reliability and security of supply of natural gas.[19] We are required, when carrying out our functions, to make a decision that will contribute, or will be likely to contribute, to the achievement of the NGO.[20] In addition, when exercising our decision-making powers, we are required to take into account the RPP.[21] This includes the principle that a service provider should be provided with effective incentives in order to promote efficient investment in, provision of and use of pipeline services, and the principle that we should have regard to the economic costs and risks of the potential for under-and over-investment in a pipeline, and utilisation of a pipeline when making our decisions.[22]

In April 2020, we published our first version of the RFM and PTRM for gas pipeline service providers under new provisions in the NGR.[23] Gas transmission businesses are required to use these models for the purposes of their access arrangement proposals. The PTRM sets out the method for calculating the forecast depreciation schedule and the approach for indexing the capital base. We have also published a separate depreciation module to the RFM that applies the year-by-year tracking depreciation approach. This module is used for calculating the depreciation of existing assets under that approach, and the output from this module will feed into the PTRM.

The regulatory depreciation approach in the PTRM involves two components:

1. A straight-line depreciation component calculated by dividing the asset value by its standard asset life (for new assets) or remaining asset life (for existing assets under the weighted average approach). We consider that the straight-line method satisfies the NGR's depreciation criteria.[24] This is because the straight-line method smooths changes in the reference tariffs, promotes efficient growth of the market, allows assets to be depreciated only once and over its economic life, and allows for a service provider's reasonable needs for cash flow.
2. An offsetting adjustment for indexation of the value of assets in the capital base. This component is necessary to prevent double counting of inflation when a nominal rate of return is applied to the inflation indexed capital base. Therefore, we

17 NGR, r. 74(2).
18 NGL, s. 28; NGR r. 100(1).
19 NGL, s. 23.
20 NGL, s. 28(1)(a).
21 NGL, s. 28(2).
22 NGL, s. 24.
23 NGR, rr. 75A–75B.
24 NGR, r. 89.

remove the revaluation (indexation) gain on the capital base from the depreciation building block when setting total revenue.

The regulatory depreciation amount is an output of our PTRM. We therefore assessed APTPPL's proposed regulatory depreciation amount by analysing the proposed inputs to the PTRM for calculating that amount. Key inputs include the:

- opening capital base at 1 July 2022
- forecast net capex in the 2022–27 period[25]
- indexation adjustment—based on the forecast capital base and expected inflation rate for the 2022–27 period
- standard asset life for each asset class—used for calculating the depreciation of new assets associated with forecast net capex in the 2022–27 period
- remaining asset life for each asset class—used for calculating the depreciation of existing assets as at 1 July 2022 under the weighted average approach.

Our draft decision on APTPPL's regulatory depreciation amount reflects our determinations on the RBP opening capital base, expected inflation and forecast net capex (the first three inputs in the above list).[26] Our determinations on these components of APTPPL's proposal are discussed in Attachments 2, 3 and 5, respectively. In this Attachment 4, we discuss our assessment on the proposed standard and remaining asset life for each asset class (the last two inputs in the above list).

In general, we consider that consistency in the standard asset life for each asset class across access arrangement periods will allow reference tariffs to vary over time in a manner which would promote efficient growth in the market for reference services. Our assessment on standard asset life of an asset class also takes into account the technical life (or the engineering designed life) of the assets associated with the asset class. We also benchmark APTPPL's standard asset lives with those used by other gas service providers for similar asset classes.

Our PTRM provides for two approaches for calculating the straight-line depreciation for the existing assets:

- the 'weighted average remaining lives' (WARL) approach: This approach calculates the remaining asset life for an asset class by weighting together its remaining asset life at the beginning of the access arrangement period with the new capex added to the asset class during that period. The residual asset values are used as weights to calculate the remaining asset life at the end of that period. The WARL for the asset

[25] Capex enters the capital base, net of forecast disposals and capital contributions. It includes equity raising costs (where relevant) and the half-year WACC to account for the timing assumptions in the PTRM. Our draft decision on the capital base (Attachment 2) also reflects our updates to the WACC for the 2022–27 period.

[26] Our final decision will update the opening capital base as at 1 July 2022 for revised estimates of actual capex and inflation.

classes are calculated in our RFM and are inputs to the PTRM. We consider this approach meets the depreciation criteria of the NGR.

- the 'year-by-year tracking' approach: Under this approach, the capex (in addition to grouping assets by type via asset classes) for each year of an access arrangement period is depreciated separately and tracked on a year-by-year basis over the assigned standard life for the asset class. This approach does not require assessment of a remaining asset life at each access arrangement review. In general, we consider that this approach would also meet the depreciation criteria of the NGR. Our depreciation tracking module conducts the detailed calculations required under this approach. The output of this module is then recorded in the PTRM.

APTPPL has proposed to continue applying the WARL approach to calculate its remaining asset lives at 1 July 2022. Our assessment on APTPPL's proposed remaining asset lives is discussed in section 4.4.1.

4.3.1 Interrelationships

The regulatory depreciation amount is a building block component of the total revenue requirement.[27] Higher (or quicker) depreciation leads to higher revenues over the access arrangement period. It also causes the capital base to reduce more quickly (excluding the impact of new capex being added to the capital base). This reduces the return on capital amount, although this impact is usually smaller than the increased depreciation amount in the short to medium term.[28] Over the life of the assets, the total revenues being recovered are in net present value (NPV) neutral terms—that is, returning the initial cost of the capital base.

Ultimately, however, a service provider can only recover the capex that it incurred on assets once.[29] The depreciation amount reflects how quickly the capital base is being recovered and is based on the remaining and/or standard asset lives used in the depreciation calculation. It also depends on the level of the opening capital base and the forecast capex. Any increase in these factors also increases the depreciation amount.

Our standard approach is to maintain the capital base in real terms, meaning the capital base is indexed for expected inflation. The return on capital building block has to be calculated using a nominal rate of return or weighted average cost of capital (WACC) applied to the opening capital base.[30] The total revenue requirement is calculated by adding the return on capital, depreciation, operating expenditure (opex),

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[27] The PTRM distinguishes between straight-line depreciation and regulatory depreciation, the difference being that regulatory depreciation is the straight-line depreciation minus the indexation amount on the projected capital base.

[28] This is generally the case because the reduction in the capital base amount feeds into the higher depreciation building block, whereas the reduced return on capital building block is proportionate to the lower capital base multiplied by the WACC.

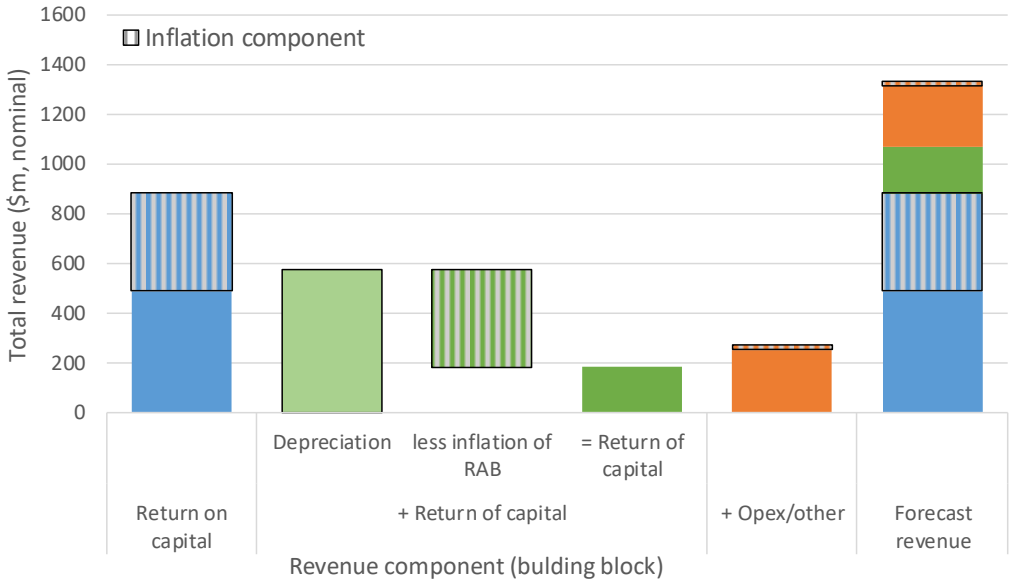
[29] NGR, r. 89(1)(d).

[30] NGR, r. 87.

tax and revenue adjustments building blocks.[31] Because inflation on the capital base is accounted for in both the return on capital (based on a nominal rate of return) and the depreciation calculations (based on an indexed capital base), an adjustment must be made to the revenue requirement to prevent compensating twice for inflation.

To avoid this double compensation, we make an adjustment by subtracting the annual indexation gain on the capital base from the calculation of total revenue. Our standard approach is to subtract the indexation of the opening capital base—the opening capital base multiplied by the expected inflation for the year—from the capital base depreciation. The net result of this calculation is referred to as regulatory depreciation (or return of capital).[32] Regulatory depreciation is the amount used in the building block calculation of total revenue to ensure that the revenue equation is consistent with the use of a capital base, which is indexed for inflation annually. Figure 4.1 shows where the inflation components are included in the building block costs.

Figure 4.1 Inflation components in revenue building blocks – example



Source: AER analysis.

This approach produces the same total revenue requirement and capital base as if a real rate of return had been used in combination with an indexed capital base. Under an alternative approach where a nominal rate of return was used in combination with an un-indexed (historical cost) capital base, no adjustment to the depreciation calculation of total revenue would be required. This alternative approach produces a different time path of total revenue compared to our standard approach. In particular, overall revenues (and therefore prices) would be higher early in the asset's life (as a

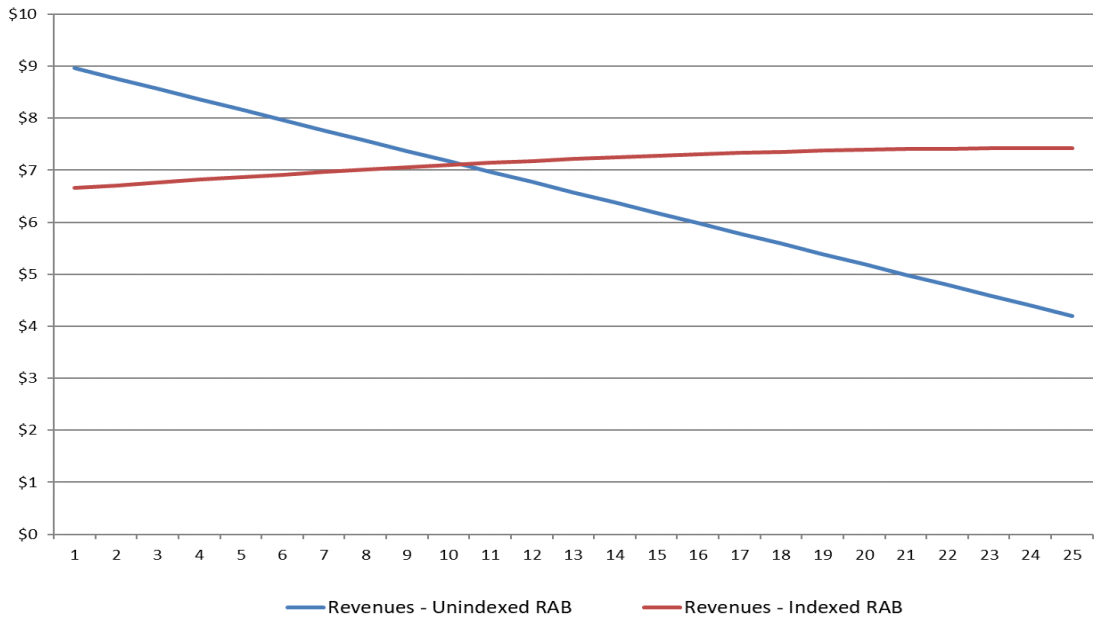
[31] NGR, r. 76.

[32] If the asset lives are extremely long, such that the capital base depreciation rate is lower than the inflation rate, then negative regulatory depreciation can emerge. The indexation adjustment is greater than the capital base depreciation in such circumstances.

result of more depreciation being returned to the service provider) and lower in the future—producing a steeper downward sloping profile of total revenue.[33] Under both approaches, the total revenues being recovered are in NPV neutral terms.

Figure 4.2 shows the recovery of revenue under both approaches using a simplified example.[34] Indexation of the capital base and the offsetting adjustment made to depreciation results in a smoother revenue recovery profile over the life of an asset than if the capital base was un-indexed. The indexation of the capital base also reduces price shocks when the asset is replaced at the end of its life.[35]

Figure 4.2 Revenue path example – indexed vs un-indexed capital base ($nominal)



Source: AER analysis.

Figure 2.1 (in Attachment 2) shows the relative size of the inflation indexation and straight-line depreciation, and their impact on the capital base using APTPPL's proposal. A 10 per cent increase in the straight-line depreciation causes revenues to increase by about 2.9 per cent.[36]

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[33] A change of approach from an indexed capital base to an un-indexed capital base would result in an initial step change increase in revenues to preserve NPV neutrality.

[34] The example is based on the initial cost of an asset of $100, a standard economic life of 25 years, a real WACC of 2.5%, expected inflation of 2.4% and nominal WACC of 4.96%. Other building block components such as opex, tax and capex are ignored for simplicity as they would affect both approaches equally.

[35] In year 26 the revenues in the example for the un-indexed approach would jump from about $4 to $9, assuming the asset is replaced by an asset of roughly similar replacement cost as the initial asset. In contrast, in the same circumstances, the indexed approach would see revenues stay at roughly $7.

[36] We have analysed the sensitivity of straight-line depreciation relative to total revenue based on input data provided in APTPPL's proposal PTRM.

4.4 Reasons for draft decision

We accept APTPPL's proposed straight-line depreciation method for calculating the regulatory depreciation amount as set out in the PTRM. However, we have reduced APTPPL's proposed forecast regulatory depreciation for the RBP by $6.1 million (27.3 per cent) to $16.2 million ($nominal) for the 2022–27 period. This reduction is mainly due to the higher expected inflation rate we applied in this draft decision compared to APTPPL's proposal (Attachment 3).

We accept APTPPL's proposal to apply the weighted average method to calculate the remaining asset lives as at 1 July 2022. However, we have updated the remaining asset lives to reflect amendments we made in the RFM.

We accept APTPPL's proposal to reduce the remaining asset life of the 'Original pipeline' asset class to 2 years and merge this asset class with the 'Pipelines' asset class.

We accept APTPPL's proposed approach to reduce the standard lives for its 'Pipelines' and 'Compressors' asset classes by setting them equal to the remaining asset lives but we do not accept this proposed approach for its 'Regulators and meters' asset class. We also accept APTPPL's proposed standard asset lives for its other asset classes.

Table 4.3 sets out our draft decision on the standard asset lives and remaining asset lives for the RBP over the 2022–27 period. We are satisfied the asset lives approved in this draft decision will result in a depreciation schedule that reflects the depreciation criteria of the NGR.[37]

[37] NGR, r. 89.

Table 4.3 AER's draft decision on APTPPL's RBP standard and remaining asset lives for the 2022–27 period (years)

Asset class	Standard asset life	Remaining asset life
Pipelines	49.8	49.8
Compressors	25.8	25.8
Regulators and meters	n/a	30.3
Easements	n/a	n/a
Communications	15.0	15.0
Capitalised AA costs	5.0	5.0
Group IT	5.0	4.1
SIB capex	5.0	3.9
Equity raising costs[a]	n/a	n/a

Source: AER analysis.

a) For this draft decision, the forecast capex determined for RBP does not meet a level to trigger any benchmark equity raising costs.

n/a Not applicable. We have not assigned a standard asset life and remaining asset life to some asset classes either because they have zero capex forecast or because the assets allocated to it are non-depreciating assets.

Our assessment of APTPPL's proposed standard and remaining asset lives are discussed in turn in the following subsections.

4.4.1 Remaining asset lives

We accept APTPPL's proposed weighted average method to calculate the remaining asset lives as at 1 July 2022. The proposed method is a continuation of the approved approach used in the RBP 2017–22 access arrangement and applies the approach as set out in our RFM. In accepting the weighted average method, we have updated APTPPL's remaining asset lives to reflect our adjustments to the proposed RFM.

In our review of APTPPL's proposed RFM submitted in July 2021,[38] we noted that the calculation for the remaining asset lives did not include 2012–17 actual capex.[39] We suggested the RFM inputs be amended to include this capex as we consider this is consistent with the approach prescribed in our RFM handbook for gas transmission businesses.[40] APTPPL submitted an updated proposed RFM which reflected this

[38] APTPPL, APTPPL, *Roma to Brisbane Pipeline 2022–27, Attachment 2 – Roll forward model*, July 2021.

[39] The calculation is set out in the 'Capital base remaining lives' worksheet of the RFM.

[40] We consider this approach prevents any forecast error in capex from distorting the WARL calculations, because any differences between forecast and actual capex could impact the weighting of the old and new assets. The distortion created by any forecast error could therefore result in an asset life that does not reflect the nature of the asset class over the economic life of that asset class.

change.[41] For this draft decision, we have further amended this calculation in the RFM to reflect the correct nominal WACC values for the 2017–22 period. We have reinstated the formulae in these cells to correctly reference the nominal WACC values in the 'RFM input' worksheet,[42] consistent with our RFM template for gas transmission businesses.

For this draft decision, the remaining asset lives as at 1 July 2022 reflect actual (unaudited) capex values for 2020–21 and estimated capex for 2021–22. We expect that APTPPL will provide audited actual capex for 2020–21 in its revised proposal, which may or may not differ from the amount adopted for this draft decision. Further, the 2021–22 estimated capex may be revised based on more up to date information. Therefore, we will recalculate APTPPL's remaining asset lives as at 1 July 2022 using the method approved in this draft decision to reflect any revised capex inputs for the final decision.

[41] APTPPL, *Roma to Brisbane Pipeline 2022–27 – Updated transmission roll forward model,* 30 September 2021.

[42] APTPPL's updated proposal RFM incorrectly hard-coded the 2017–22 nominal WACC values in this worksheet.

Reduced remaining asset life for 'Original pipeline' asset class (DN250) and merging with 'Pipelines' asset class

We accept APTPPL's proposed approach to reduce the remaining asset life for the 'Original pipeline' asset class (DN250 pipeline) to 2 years and merge this asset class with the 'Pipelines' asset class. We have assessed the information put to us by APTPPL, and consider this approach is appropriate and consistent with the NGR.

The impact of APTPPL's proposed approach is a $5.6 million increase to straight-line depreciation over the 2022–27 period.[43]

APTPPL stated that the accelerated depreciation of the DN250 pipeline formed part of its consultation with the RBP stakeholder group.[44] We note that we have not received any stakeholder submissions regarding this issue.

With its proposed approach, APTPPL calculated a new remaining asset life of 49.8 years for the (merged) 'Pipelines' asset class as at 1 July 2022. This life is the weighted average (by opening capital base values) of the reduced remaining asset life of the 'Original pipeline' (2 years) and the (pre-merged) remaining asset life of the 'Pipelines' asset class (61.4 years).[45] Table 4.4 shows APTPPL's proposed approach.

Table 4.4 APTPPL's RBP proposed reductions to the remaining asset life for 'Original pipeline' asset class and merging with 'Pipelines' asset class

Case	Asset class	1 July 2022 asset value[a]	RFM-calculated remaining lives	Proposed economic lives of existing assets
Pre-merged	Original pipeline	$83.0 million	43.6 years	2.0 years
Pre-merged	Pipelines	$341.1 million	61.4 years	61.4 years
After merging	**Pipelines**	**$424.0 million**	**n/a**	**49.8 years**

Sources: APTPPL, *Roma to Brisbane Pipeline 2022–27 – Updated Post-tax revenue model,* 30 September 2021.

a) As commissioned.

APTPPL stated that the DN250 pipeline (allocated to the 'Original pipeline' asset class) was commissioned in 1969 with an original technical life of 50 years[46] which implies an expected end of technical life of 2019.[47]

In the RFM, the 'Original pipeline' asset class reflects a range of assets including the original DN250 pipeline plus the augmentation and stay in business capex undertaken

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43 Based on AER analysis. This calculation is in nominal dollar terms and also based on other APTPPL's proposal inputs. In real 2021–22 dollar terms, the impact is $5.3 million.

44 APTPPL, *Roma to Brisbane Pipeline 2022–27 Access arrangement, Overview,* July 2021, pp. 11–12.

45 These asset lives reflect APTPPL's updated proposal PTRM. In the proposal information APTPPL's submitted in July, the new remaining asset life for the (merged) 'Pipelines' asset class was 49.5 years. APTPPL, *Roma to Brisbane Pipeline 2022–27 – Updated Post-tax revenue model,* 30 September 2021.

46 APTPPL, *Roma to Brisbane Pipeline 2022–27 Access arrangement, Overview,* July 2021, p. 27.

47 We note for the 'Original pipeline' asset class, the standard asset life approved for the current period is 60 years.

since the original pipeline was commissioned. Over time, the value of the original pipeline has been depreciating while new capex has been added to this asset class. As such, the original pipeline's value relative to the overall asset class has been decreasing as has its effect on the WARL for the asset class.

Therefore, the asset value of $83.0 million[48] as at 1 July 2022 and the WARL of 43.6 years for this asset class are each affected less by the original pipeline and more by the subsequent augmentation and stay in business expenditures.

APTPPL stated that the DN250 pipeline is about to reach the end of its useful life, as it is highly corroded and is to be decommissioned. It submitted that the proposed reduced life of 2 years for the 'Original pipeline' asset class reflects the end of the economic life of the DN250 pipeline because it will take 2 years to transfer existing DN250 customers across to the DN400 pipeline.[49] APTPPL also proposed merging the two pipeline asset classes to smooth the accelerated depreciation over a longer period and avoiding large increases to revenue and tariffs.[50]

We consider the age and condition of the DN250 pipeline likely warrants its retirement. We also consider that it would not be suitable for the DN250 pipeline to be repurposed in the future for the transport of alternative fuel such as hydrogen gas. Further, we consider the capex program to switch customers from it to the DN400 pipeline is prudent as it will avoid capex for maintenance and repair costs through reduced pipeline integrity management as well as eliminate the risk of pipeline failure.[51] We are satisfied that the timeline of 2 years for this program is appropriate. Once the existing customers for the DN250 pipeline are transferred across to the DN400 pipeline, the DN250 is to be decommissioned, and so it will have no further economic use. Similarly, we consider that other assets in the 'Original pipeline' asset class included in previous periods will have no ongoing economic use when they are no longer supported by the operation of the DN250 pipeline itself.

On balance we consider a reduced remaining asset life of 2 years is appropriate, and consistent with the requirements of the NGR, because this reflects the change in expected economic life of the assets in this asset class.[52] This approach is consistent with our previous decisions on accelerated depreciation of existing assets forecast to be removed from service.[53] For this draft decision, we accept that the proposed

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48 This is the as-commissioned asset value for the 'Original pipeline' asset class.

49 APTPPL, *Roma to Brisbane Pipeline 2022–27 Access arrangement, Overview,* July 2021, p. 28.

50 APTPPL noted that if the remaining asset life of the DN250 pipeline was reduced to 2 years but the two pipeline asset classes were not merged, the opening capital base value of the DN250 pipeline would fully depreciate in the first 2 years of the 2022–27 period which would result in very large increases to revenue and tariffs. APTPPL, *Roma to Brisbane Pipeline 2022–27 Access arrangement, Overview,* July 2021, pp. 29–30.

51 Capex relating to the DN250 pipeline is discussed further in Attachment 5.

52 NGR, r. 89(1)(c).

53 For example, AER, *Final decision:* Australian Gas Networks (South Australia) access arrangement 2021–26 and AER, *Final decision:* Australian Gas Networks (Victoria and Albury) access arrangement 2018–22. In each of these previous decisions we accepted accelerated depreciation of the residual value of existing assets that had been replaced or were forecast to be replaced during the access arrangement period.

remaining asset life as at 1 July 2022 of the 'Original pipeline' asset class is reduced to 2 years to reflect this reduced economic life of the DN250 pipeline.

However, while it would appear to be reasonable for the residual value of this asset to be fully depreciated by the end of 2023–24 to reflect its reduced economic life, we have also considered the resulting tariff impact. We agree with APTPPL's proposal that merging the two pipeline asset classes avoids the very large increases to revenue and tariffs that would otherwise result from the reduced remaining asset life of 2 years for the DN250 pipeline.[54] We consider that if the two classes are not merged, very large increases to tariffs could result in customers defecting from the network early, which could then lead to further tariff increases and defections. We consider that merging the asset classes helps to stabilise tariffs and customer numbers, and is therefore consistent with the NGR because it provides for a price path that will promote efficient growth in reference services.[55]

APTPPL's proposed approach to reduce the life of the DN250 pipeline and merge the asset classes results in the proposed straight-line depreciation of these assets of $42.6 million ($2021–22) as shown in Table 4.5.[56] This is $5.3 million higher than the case without APTPPL's proposed changes for accelerated depreciation as shown in Table 4.6.

The alternative case where the remaining asset life of the DN250 pipeline is reduced to 2 years and the two pipeline asset classes are not merged is shown in Table 4.7. In this case the capital base value of the DN250 pipeline ($83.0 million) would fully depreciate in the first 2 years of the 2022–27 period.

Table 4.5 APTPPL's proposal: Reduced DN250 life, merged asset class with weighted average remaining life

Asset class	1 July 2022 asset value	Remaining asset life	2022–27 straight-line depreciation[a] ($2021-22)
Pipelines	$424.0 million	49.8 years	$42.6 million

a) Depreciation of opening capital base asset values (as commissioned) only, excludes depreciation of forecast capex.

54 If we accept the reduced remaining asset life of 2 years for the DN250 but leave the asset classes separate, the remaining value of DN250 would fully depreciate in 2 years.

55 NGR, r. 89(1)(a).

56 APTPPL, *Roma to Brisbane Pipeline 2022–27 – Updated Post-tax revenue model,* 30 September 2021.

Table 4.6 DN250 life unchanged, without merging

Asset class	1 July 2022 asset value	Remaining asset life	2022–27 straight-line depreciation[a] ($2021-22)
Original pipeline	$83.0 million	43.6 years	$9.5 million
Pipelines	$341.1 million	61.4 years	$27.8 million
Total	**$424.0 million**		**$37.3 million**

a) Depreciation of opening capital base asset values (as commissioned) only, excludes depreciation of forecast capex.

Table 4.7 Reduced DN250 life, without merging (leads to highest depreciation)

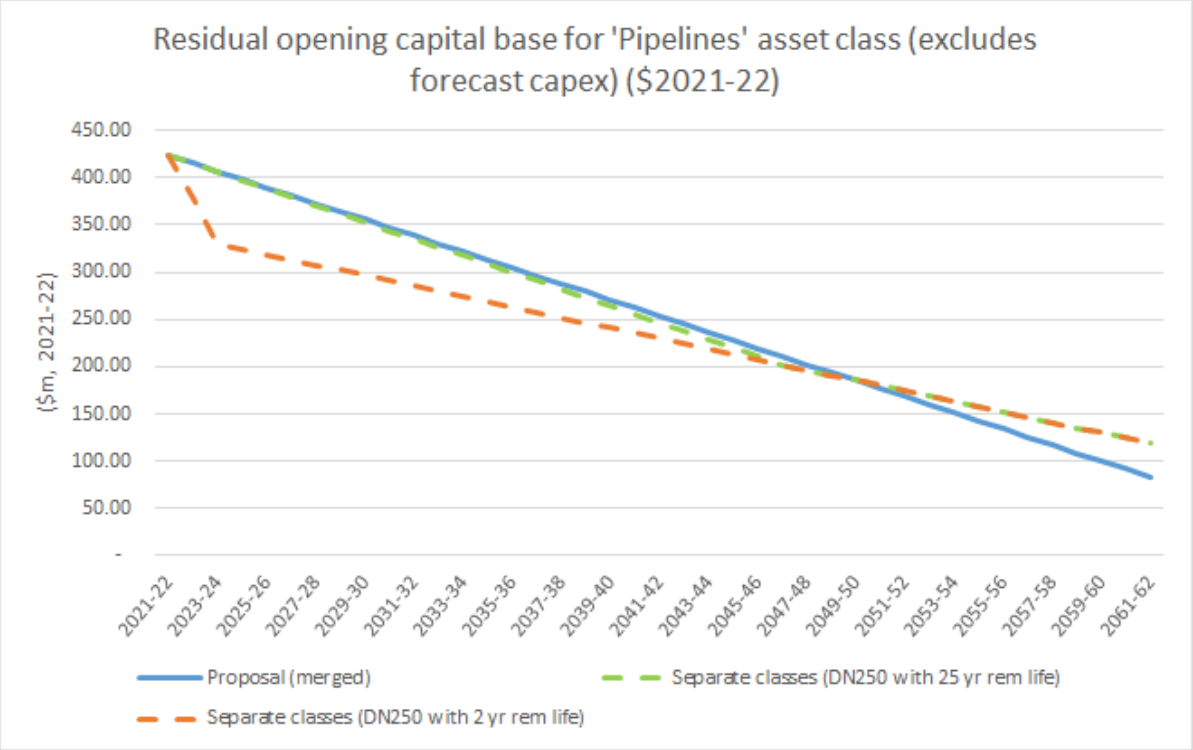
Asset class	1 July 2022 asset value	Remaining asset life	2022–27 straight-line depreciation[a] ($2021-22)
Original pipeline	$83.0 million	2.0 years	$83.0 million
Pipelines	$341.1 million	61.4 years	$27.8 million
Total	**$424.0 million**		**$110.7 million**

a) Depreciation of opening capital base asset values (as commissioned) only, excludes depreciation of forecast capex.

Figure 4.3 shows the impact on the residual opening capital base value for the pipeline assets. It compares:

- APTPPL's proposed approach (merged asset class with a remaining life of 49.8 years)
- an alternative case in which the asset classes are kept separate and the DN250 is depreciated over 2 years (reflecting the proposed new economic life). The chart plot shows a large decrease in the capital base in the first 2 years of the 2022–27 period, reflecting the capital base value of the DN250 ($83.0 million) being fully depreciated
- another alternative case in which the pipeline asset classes are kept separate and the DN250 is depreciated over 25 years. This case is shown for reference as it has a similar depreciation profile to APTPPL's proposed merging profile for the first 25 years.

Figure 4.1 Residual capital base – 'Pipelines' asset class



Source: AER analysis.

Taking account of our draft decision RFM amendments that affect the remaining asset lives calculation, we determine a remaining asset life as at 1 July 2022 for the 'Pipelines' asset class of 49.8 years consistent with the life proposed by APTPPL.[57] For this draft decision, we therefore accept APTPPL's proposal to assign a remaining life of 49.8 years for the 'Pipelines' asset class. Because this remaining asset life was calculated based on estimates of capex for 2021–22, we will recalculate the remaining asset life for the 'Pipelines' asset class as at 1 July 2022 using the method approved in this draft decision to reflect any revised capex and other RFM inputs for the final decision.

4.4.2 Standard asset lives

We accept the majority of the standard asset lives proposed by APTPPL as they are consistent with those approved for the 2017–22 period.

We also accept APTPPL's proposed approach for accelerated depreciation by reducing the standard asset lives for its 'Pipelines' and 'Compressors' asset classes by setting them equal to their respective remaining asset lives.

[57] Our draft decision remaining asset life is slightly different to APTPPL's proposed life but is consistent to 1 decimal place.

However, we do not accept this same proposed approach for the 'Regulators and meters' asset class. For this asset class we do not assign a standard asset life as it has zero capex forecast for the 2022–27 period.

APTPPL proposed reducing the standard asset lives of its 'Pipelines', 'Compressors' and 'Regulators and meters' asset classes to be equal to their respective remaining asset lives. The impact of this proposed change is a $0.5 million increase to straight-line depreciation over the 2022–27 period. [58]

Table 4.8 sets out APTPPL's proposed changes to the standard asset lives for the relevant three asset classes. It shows that about 68 per cent of the total proposed forecast capex for the 2022–27 period is allocated to these asset classes.

Table 4.8 APTPPL's proposed reductions to RBP standard asset lives and forecast capex allocations

Asset class	Previously approved standard asset life	Proposed standard asset life	Total forecast capex allocated to asset class ($2021–22)	Proportion of total proposed capex
Pipelines	80 years	49.8 years	$19.5 million	67%
Compressors	35 years	25.8 years	$0.2 million	1%
Regulators and meters	40 years	30.3 years	zero	zero

Source: AER analysis and APTPPL, *Roma to Brisbane Pipeline 2022–27 – Updated Post-tax revenue model,* 30 September 2021.

APTPPL submitted that there is long-term uncertainty for the energy sector, gas transmission and the RBP itself. Its proposal reflects that:[59]

- the calculated remaining asset life for the (proposed merged) 'Pipelines' asset class could represent 'an upper limit on the life of the RBP'[60]
- there is no certainty that the RBP itself would be replaced to extend beyond that time
- any new pipeline assets would 'cease to have economic value' after that time.

APTPPL also submitted that the current standard asset life of the 'Pipelines' asset class of 80 years is no longer appropriate, as the type of capex forecast will not extend the life of the existing pipeline. It stated that setting the standard asset life for the

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58 Based on AER analysis. This calculation is in nominal dollar terms and also based on other APTPPL's proposal inputs.

59 APTPPL, *Roma to Brisbane Pipeline 2022–27 Access arrangement, Overview,* July 2021, p. 36.

60 In APTPPL's proposal document and PTRM this remaining asset life was 49.5 years. APTPPL, *Roma to Brisbane Pipeline 2022–27 Access arrangement, Overview,* July 2021, p. 35; APTPPL, *Roma to Brisbane Pipeline 2022–27, Attachment 3 – Post-tax revenue model*, July 2021. In APTPPL's updated proposal PTRM, the remaining asset life was updated to 49.8 years. APTPPL, *Roma to Brisbane Pipeline 2022–27 – Updated Post-tax revenue model,* 30 September 2021.

'Pipelines' asset class equal to the remaining asset life would mean the associated capex would maintain, rather than increase the remaining asset life for this asset class.[61]

APTPPL further submitted that the proposed reductions to the standard asset lives for the 'Compressors' and 'Regulators and meters' asset classes were appropriate to maintain their respective remaining asset lives.[62]

APTPPL stated that the types of works in its capex forecast for the 2022–27 period were to ensure the pipeline's technical life is achieved, rather than extending its technical life.[63]

APTPPL also stated that the RBP stakeholder group did not raise any concerns about the issue of reduced standard asset lives.[64] We note that we have not received any stakeholder submissions regarding this issue.

Long term uncertainty and stranding risk

We acknowledge APTPPL's concern regarding long-term uncertainty for the gas sector. The future of natural gas is a live issue, particularly as renewable electricity becomes cheaper and is increasingly becoming the choice of consumers. We also note that there is still much uncertainty about the long-term viability of transporting alternative fuels such as hydrogen gas. We have recently released an information paper on the uncertainty and challenges for the regulation of gas pipelines which includes the issue of stranding risk.[65]

One of the key aspects of this issue is the risk of asset stranding for both investors and consumers. We consider an important aspect of reducing stranding risk for consumers is by ensuring that capex decisions reflect the level of future uncertainty for the gas pipeline. We acknowledge that some capex may be required to stay in business, even though the technical life of the individual assets may be longer than the expected useful life of the pipeline as a whole. If we apply accelerated depreciation to address asset stranding risk but do not put any constraints on capex, then while investors get increased certainty that they would get their money back in a shorter period, it does not prevent poor investment decisions being borne by consumers once the stranding risk is realised. As discussed in Attachment 5, APTPPL's forecast capex for the 2022–27 period is 65 per cent lower than the amount approved for the 2017–22 period. Further, we note that the forecast capex is comprised of replacement capex and non-network capex, and does not contain any capex for expansion purposes. We therefore consider that APTPPL's proposed forecast capex is consistent with its stated concerns regarding long-term uncertainty and the impact for the RBP.

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61 APTPPL, *Roma to Brisbane Pipeline 2022–27 Access arrangement, Overview,* July 2021, p. 36.

62 Ibid., p. 36.

63 Ibid., p. 36.

64 Ibid., p. 36.

65 AER, *Regulating gas pipelines under uncertainty information paper*, November 2021.

Types of capex works and assessment of technical lives

We note that the RBP's asset classes used for depreciation purposes are not as disaggregated as some other gas networks. We consider it appropriate to assess the suitability of the proposed standard asset lives by reference to the type of forecast capex for the 2022–27 period.

Table 4.9 and Table 4.10 show APTPPL's proposed capex disaggregated by capex program for the 'Pipelines' and 'Compressors' asset classes respectively.

Table 4.9 'Pipelines' asset class: proposed capex by program

Capex program	Proposed capex ($m, 2021-22)
Liquids removal	1.0
Pipeline integrity	13.1
Pipeline relocation	0.3
Supply security project	4.7
Valve upgrade	0.2
Total	**19.5**

Source: APTPPL, *Roma to Brisbane Pipeline 2022–27 – Updated forecast capex model,* 30 September 2021.

Table 4.10 'Compressors' asset class: proposed capex by program

Capex program	Proposed capex ($m, 2021-22)
Battery charger replacement	0.2
Total	**0.2**

Source: APTPPL, *Roma to Brisbane Pipeline 2022–27 – Updated forecast capex model,* 30 September 2021.

We note that the majority of the proposed capex for the 'Pipelines' asset class is for the Pipeline integrity program which includes cathodic protection augmentation and various types of pipeline inspections. We agree with APTPPL that these types of capex works do not create new standalone assets and that their primary purpose is to maintain the pipeline's original technical life, rather than to extend the life.[66]

In assessing APTPPL's proposed approach to reduce the standard asset lives for the 'Pipelines' and 'Compressors' asset classes, we consider it would be appropriate to compare the proposed standard asset lives against the technical or engineering lives expected for these types of capex works.

[66] APTPPL, *Roma to Brisbane Pipeline 2022–27 Access arrangement, Overview,* July 2021, p. 36.

For the 'Pipelines' asset class, we therefore considered the appropriate technical life that would be expected for each of the capex projects and based on the proposed capex weighting of each project, we calculated a weighted average technical life of 31.3 years for this asset class. We note that this technical life is shorter than the current standard asset life of 80 years as it reflects the large proportion of maintenance-type capex works for this asset class for the 2022–27 period. We consider the current standard asset life of 80 years is more appropriate where a larger proportion of the forecast capex reflects the replacement or augmentation of pipeline sections. We also note that the technical life is shorter than the reduced standard life of 49.8 years proposed by APTPPL.

For the 'Compressors' asset class, the $0.2 million forecast capex is for battery charger replacements.[67] This capex appears to be regular in nature reflecting the technical life of battery chargers. We consider that an expected technical life of 15 years is appropriate for these types of assets, which is shorter than the current standard asset life of 35 years and the reduced standard life of 25.8 years proposed by APTPPL.

Based on the proposed forecast capex works for the 2022–27 period, for both the 'Pipelines' and 'Compressors' asset classes the expected technical lives are shorter than the current standard asset lives. We therefore agree with APTPPL that the current standard asset lives are no longer appropriate for these asset classes. We have tested the appropriateness of the proposed standard asset lives by comparing them to the expected technical lives. APTPPL's proposed approach results in standard asset lives for these asset classes which are longer than the respective expected technical lives and therefore result in lower depreciation compared to if the technical lives were adopted. Further, the proposed standard asset lives are closer to the expected technical lives than the current lives. Overall, we consider APTPPL's approach is reasonable for these asset classes.

For our draft decision, we therefore accept APTPPL's proposed approach to set the standard asset life equal to the remaining asset life for the 'Pipelines and 'Compressors' asset classes. Taking account of our other updates we have made in the RFM which affect the remaining asset lives, our draft decision results in standard asset lives of:

- 49.8 years for the 'Pipelines' asset class
- 25.8 years for the 'Compressors' asset class.

These lives are consistent with APTPPL's proposal.[68] We note that for the final decision, we will update the standard asset lives for the 'Pipelines and 'Compressors'

[67] APTPPL, *Roma to Brisbane Pipeline 2022–27 – Updated forecast capex model,* 30 September 2021.

[68] Our draft decision asset lives are slightly different to APTPPL's proposed lives but are consistent to 1 decimal place.

asset classes to reflect any updates to the respective remaining asset lives for these asset classes.[69]

APTPPL also proposed to reduce the standard asset life for the 'Regulators and meters' asset class. While we are able to assess the suitability of APTPPL's proposed standard asset lives for the 'Pipelines' and 'Compressors' asset classes by reference to the forecast capex for the 2022–27 period, we are unable to do this for the 'Regulators and meters' asset class. This is because the 'Regulators and meters' asset class is not expected to be used and therefore has zero forecast capex allocated for the 2022–27 period. For this draft decision, we therefore do not assign it a standard asset life. We note that because there is zero capex forecast for this asset class, our decision to not assign a standard asset life does not impact the depreciation calculations, and as such the total revenue requirement.

[69] Because the remaining asset lives are calculated based on estimates of capex for 2021–22, we will recalculate remaining asset lives for the 'Pipelines' and 'Compressors' asset classes as at 1 July 2022 using the method approved in this draft decision to reflect any revised capex and other RFM inputs for the final decision.

A. Shortened forms

Shortened form	Extended form
AER	Australian Energy Regulator
APTPPL	APT Petroleum Pipelines Pty Limited
Capex	Capital expenditure
NGL	National Gas Law
NGR	National Gas Rules
NGO	National Gas Objective
NPV	Net present value
Opex	Operating expenditure
PTRM	Post-tax revenue model
RBP	Roma to Brisbane Pipeline
RFM	Roll forward model
RPP	Revenue and pricing principles
WACC	Weighted average cost of capital
WARL	Weighted average remaining lives